Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method of performing a virtual network connection merge, the method comprising:

assigning a relative frequency value to each network connection in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth;

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge, a ready network connection being a network connection ready to send a data unit;

assembling one or more data units from data traffic of ~~the~~ ready network connections that are not detected as debit connections;

determining a chosen data unit to be transmitted to an output channel from among the assembled data units, the chosen data unit belonging to a first connection in the ready network connections~~, wherein the step of determining the chosen data unit depends on credit of the first connection~~;

transmitting the chosen data unit to the output channel; and

adjusting the credit of the first connection based upon the data unit transmitted, wherein after the chosen data unit is transmitted the first connection becomes a debit connection if credit required to transmit the chosen data unit exceeds the credit of the first connection.

2. (original) The method of Claim 1, wherein the step of assembling at least one data unit comprises:

allocating the data traffic of the at least one data unit into memory cells;

adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF) cell is received, wherein the end of frame cell is used to identify unit boundaries.

3. (previously presented) The method of Claim 1, further comprising calculating a higher credit for network connections that have a data unit ready for transmission, wherein a ready data unit is a whole data unit with memory cells filled with data traffic.

4. (original) The method of Claim 2, wherein the step of transmitting the chosen data unit comprises:

allocating merge bandwidth for the chosen data unit;

adding memory cells of the chosen data unit to transmit lists; and

transmitting the memory cells of the chosen data unit to the output channel based on information in the transmit lists, wherein the memory cells of the chosen data unit are transmitted until an end of frame cell of the chosen data unit is transmitted.

5. (original) The method of Claim 1, further comprising:

determining another chosen data unit to be transmitted to the output channel; and

transmitting the other chosen data unit to the output channel.

6. (previously presented) The method of Claim 5, further comprising performing steps of the method until all data units from ready network connections with sufficient credit have been transmitted.

7. (previously presented) The method of Claim 1, wherein the ready network connections include Asynchronous Transfer Mode (ATM) connections.

8. (original) The method of Claim 1, further comprising:

assigning a bandwidth guarantee to each network connection;

receiving an overload of traffic from a network connection having a relatively low bandwidth guarantee; and

storing the overload of traffic into at least one stored data unit.

9. (canceled)

10. (previously presented) The method of Claim 1, wherein the determining step comprises:

generating a particular bandwidth shape token for the virtual network connection merge; and

receiving a bandwidth shape token configured to assist in identifying the chosen data unit.

11. (Currently amended) An integrated circuit configured to perform a virtual network connection merge, the integrated circuit comprising:

controller circuitry configured to control operations of:

assigning a relative frequency value to each network connection in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth;

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge, a ready network connection being a network connection ready to send a data unit;

assembling one or more data units from data traffic of ~~the~~ ready network connections that are not detected as debit connections;

determining a chosen data unit to be transmitted to an output channel from among the assembled data units, the chosen data unit belonging to a first connection in the ready network connections~~, wherein the step of determining the chosen data unit depends on credit of the first connection~~;

transmitting the chosen data unit to the output channel; and

adjusting the credit of the first connection based upon the data unit transmitted, wherein after the chosen data unit is transmitted the first connection becomes a debit connection if credit required to transmit the chosen data unit exceeds the credit of the first connection.

12. (original) The integrated circuit of Claim 11, wherein the controller circuitry is further configured to control operations of:

allocating the data traffic of the at least one data unit into memory cells;

adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF) cell is received, wherein the end of frame cell is used to identify unit boundaries.

13. (previously presented) The integrated circuit of Claim 11, wherein the controller circuitry is further configured to control an operation calculating a higher credit for a network connection having a data unit that is ready for transmission, wherein a ready data unit is a whole data unit with memory cells filled with data traffic.

14. (original) The integrated circuit of Claim 12, wherein the controller circuitry is further configured to control operations of:

allocating merge bandwidth for the chosen data unit;

adding memory cells of the chosen data unit to transmit lists; and

transmitting the memory cells of the chosen data unit to the output channel based on information in the transmit lists, wherein the memory cells of the chosen data unit are transmitted until an end of frame cell of the chosen data unit is transmitted.

15. (original) The integrated circuit of Claim 11, wherein the controller circuitry is further configured to control operations of:

determining another chosen data unit to be transmitted to the output channel; and

transmitting the other chosen data unit to the output channel.

16. (previously presented) The integrated circuit of Claim 15, wherein the controller circuitry is further configured to carry out operations of the integrated circuit until all data units from ready network connections with sufficient credit have been transmitted.

17. (previously presented) The integrated circuit of Claim 11, wherein the ready network connections include at least one Asynchronous Transfer Mode (ATM) connection.

18. (original) The integrated circuit of Claim 11, wherein the controller circuitry is further configured to control operations of:

assigning a bandwidth guarantee to each network connection;

receiving an overload of traffic from a network connection having a relatively low bandwidth guarantee; and

storing the overload of traffic into at least one stored data unit.

19. (canceled)

20. (previously presented) The integrated circuit of Claim 11, wherein the controlling circuitry is further configured to control operations of:

generating a particular bandwidth shape token for the virtual network connection merge; and

receiving a bandwidth shape token configured to assist in identifying the chosen data unit.

21. (Currently amended) A computer-readable medium carrying one or more sequences of one or more instructions for performing a virtual network connection merge, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

assigning a relative frequency value to each network connection in a plurality of network connections, wherein a higher relative frequency value is assigned to a network connection requiring a higher relative bandwidth;

allocating credits to ready network connections in the plurality of network connections in proportion to relative frequency values of ready network connections of a same virtual network connection merge, a ready network connection being a network connection ready to send a data unit;

assembling one or more data units from data traffic of ~~the~~ ready network connections that are not detected as debit connections;

determining a chosen data unit to be transmitted to an output channel from among the assembled data units, the chosen data unit belonging to a first connection in the ready network connections~~, wherein the step of determining the chosen data unit depends on credit of the first connection~~;

transmitting the chosen data unit to the output channel; and

adjusting the credit of the first connection based upon the data unit transmitted, wherein after the chosen data unit is transmitted the first connection becomes a debit connection if credit required to transmit the chosen data unit exceeds the credit of the first connection.

22. (original) The computer-readable medium of Claim 21, wherein the step of assembling at least one data unit further causes the processor to carry out the steps of:

allocating the data traffic of the at least one data unit into memory cells;

adding the memory cells to cell descriptor (CD) lists until an end of frame (EOF) cell is received, wherein the end of frame cell is used to identify unit boundaries.

23. (previously presented) The computer-readable medium of Claim 21, wherein the instructions further cause the processor to carry out a step of calculating a higher credit for network connections that have a data unit ready for transmission, wherein a ready data unit is a whole data unit with memory cells filled with data traffic.

24. (original) The computer-readable medium of Claim 22, wherein the step of transmitting the chosen data unit further causes the processor to carry out the steps of:

allocating merge bandwidth for the chosen data unit;

adding memory cells of the chosen data unit to transmit lists; and

transmitting the memory cells of the chosen data unit to the output channel based on information in the transmit lists, wherein the memory cells of the chosen data unit are transmitted until an end of frame cell of the chosen data unit is transmitted.

25. (original) The computer-readable medium of Claim 21, wherein the instructions further cause the processor to carry out the steps of:

determining another chosen data unit to be transmitted to the output channel; and

transmitting the other chosen data unit to the output channel.

26. (previously presented) The computer-readable of Claim 25, wherein the instructions further cause the processor to perform the steps until all data units from ready network connections with sufficient credit have been transmitted.

27. (previously presented) The computer-readable medium of Claim 21, wherein the ready network connections include Asynchronous Transfer Mode (ATM) connections.

28. (original) The computer-readable medium of Claim 21, wherein the instructions further cause the processor to carry out the steps of:

assigning a bandwidth guarantee to each network connection;

receiving an overload of traffic from a network connection having a relatively low bandwidth guarantee; and

storing the overload of traffic into at least one stored data unit.

29. (canceled)

30. (previously presented) The computer-readable of Claim 21, wherein the determining step further causes the processor to carry out the steps of:

generating a particular bandwidth shape token for the virtual network connection merge; and

receiving a bandwidth shape token configured to assist in identifying the chosen data unit.

31. (previously presented) A method of performing a virtual network connection merge, the method comprising:

assigning a relative frequency value to each network connection in a plurality of network connections being represented in a first list;

assigning a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion, a ready network connection being a connection ready to send a data unit;

when a ready network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list;

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty, wherein when a network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list;

determining a chosen data unit to be transmitted to an output channel from a ready network connection in the ready network connections, wherein the step of determining the chosen data unit depends on credit of the ready network connection; and

transmitting the chosen data unit to the output channel.

32. (previously presented) The method of claim 31, further comprising moving the ready network connection from the first list to a second list, wherein when the first list is empty, moving the ready network connections back to the first list, the method further comprising:

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list in a round robin sequential fashion until the first list is empty, wherein when a ready network connection is assigned credits at least equal to its relative frequency value, removing the ready network connection from the first list.

33. (previously presented) The method of claim 1, wherein allocating credits to each ready network connection comprises:

assigning a credit to each ready network connection in the plurality of network connections in a list;

when a ready network connection is assigned credits equal to its relative frequency value, removing the ready network connection from the list; and

continuing to assign a credit to each ready network connections in the plurality of network connections in the first list until the list is empty, wherein when a ready network connection is assigned credits equal to its relative frequency value, the ready network connection is removed from the first list.

34. (previously presented) The method of claim 11 wherein allocating credits to each network connection comprises:

assigning a credit to each ready network connection in the plurality of network connections in a list;

when a ready network connection is assigned credits equal to its relative frequency value, removing the ready network connection from the list; and

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list until the list is empty, wherein when a ready network connection is assigned credits equal to its relative frequency value, the ready network connection is removed from the first list.

35. (previously presented) The method of claim 21, wherein allocating credits to each network connection comprises:

assigning a credit to each ready network connection in the plurality of network connections in a first list;

when a ready network connection is assigned credits equal to its relative frequency value, removing the ready network connection from the first list; and

continuing to assign a credit to each ready network connection in the plurality of network connections in the first list until the first list is empty, wherein when a ready network connection is assigned credits equal to its relative frequency value, the ready network connection is removed from the first list.